

WHAT IS CLAIMED IS:

1. A method of manufacturing an optical device,
comprising:
forming a mesa structure from said substrate, said mesa
structure having a cladding layer located thereover; and
isolating an end of a first layer from said cladding layer
by encapsulating said end between second and third layers
located adjacent said mesa structure.

2. The method as recited in Claim 1 wherein said first layer
comprises indium phosphide and said encapsulating includes forming
said first layer having said isolated end in the presence
phosphorous trichloride.

3. The method as recited in Claim 1 wherein said second and
third layers comprise indium phosphide and said encapsulating
includes forming said second and third layers in an atmosphere
substantially free of phosphorous trichloride.

4. The method as recited in Claim 1 wherein said isolating
includes forming said first layer in the presence of a compound
containing chlorine or bromine.

5. The method as recited in Claim 1 wherein said second and
2 third layers are doped with an n-type dopant.

6. The method as recited in Claim 1 further including a
2 fourth layer wherein said second layer is located between said
3 first and fourth layers and said fourth layer is doped with a p-
4 type dopant.

7. The method as recited in Claim 1 wherein said first layer
2 is doped with a metal capable of diffusing into said cladding
3 layer.

8. An optical device, comprising:

a mesa structure;

a cladding layer located over said mesa structure; and

first, second, and third layers located adjacent said cladding layer, an end of said second layer encapsulated between said first and third layers and isolated from said cladding layer.

9. The optical device recited in Claim 8 wherein said optical device forms at least a portion of a transmitter.

10. The optical device recited in Claim 8 further comprising a fourth layer located between said mesa structure and said second layer, wherein said first and third layers are doped with an n-type dopant, said second layer is doped with a metal and said fourth layer is doped with a p-type dopant.

11. The optical device as recited in Claim 8 further comprising a contact located over said cladding layer.

12. The optical device as recited in Claim 10 further including a fifth layer located adjacent said mesa structure wherein said fifth layer comprises indium aluminum arsenide.

13. The optical device as recited in Claim 8 wherein said
2 second layer is doped with a metal capable of diffusing into said
3 cladding layer.

14. The optical device as recited in Claim 8 further
2 including a fourth layer located between said mesa structure and
3 said first layer and wherein said first, third and fourth layers
4 extend along a wall of said mesa structure.

15. An optical transmitter, comprising:

a radiation source, including:

a mesa structure;

a cladding layer located over said mesa structure; and

first, second, and third blocking layers located adjacent said

cladding layer, an end of said second blocking layer

encapsulated between said first and third blocking layers and

isolated from said cladding layer;

an electric source coupled to said radiation source; and

a waveguide coupled to said radiation source.

16. The optical transmitter as recited in Claim 15 wherein

said second layer is doped with a metal capable of diffusing into

said cladding layer.

17. The optical transmitter recited in Claim 15 further

comprising a modulator coupled to said radiation source.

18. The optical transmitter recited in Claim 15 wherein said
2 optical transmitter is coupled to a component selected from
3 the group consisting of:
4 a PIN diode;
5 a laser;
6 a modulator; and
7 a photodetector.

19. The optical transmitter recited in Claim 15 further
2 comprising a fourth layer located between said mesa structure and
3 said second layer, wherein said first and third layers are doped
4 with an n-type dopant, said second layer is doped with a metal and
5 said fourth layer is doped with a p-type dopant.

20. The optical transmitter as recited in Claim 19 wherein
2 said first, third and fourth layers extend along a wall of said
3 mesa structure.